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ABSTRACT

A comparison of several major learning taxonomies produced a three dimensional taxonomy of learner involvement on the mental, social, and physical dimensions. The six hierarchical levels of the mental dimension--recording, reacting, interpreting, analyzing, evaluating and applying, and synthesizing--indicate a synthesis of cognitive, affective, and some psychomotor elements. The social levels--aggregrate, individual, and group--are further subdivided into silent or vocal/verbal interactions with others. The physical dimension, indicating the extent of muscle use during learning activities, moves from (1) the small muscles like the eyes and lips to (2) motion focused in the extremity of the body, then (3) movement located in a part of the body, and finally to (4) activities requiring coordination of total body movement. By providing a clearer understanding of what various assignments demand of students, the cubic taxonomy assists in the designing, sequencing, and assessment of teaching activities. Preliminary research indicates that the three dimensions are valid in classroom and job interview situations. (Appended are a table comparing various taxonomies, graphs of the cubic taxonomy, and an exercise in using the taxonomy to evaluate classroom speech assignments.) (MM)

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TOWARD A CONFLUENT TAXONOMY OF COGNITIVE, AFFECTIVE AND PSYCHOMOTOR ABILITIES

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TOWARD A CONFLUENT TAXONOMY OF COGNITIVE, AFFECTIVE AND PSYCHOMOTOR ABILITIES

Abstract

Theorists in education and communication have developed systematic categories of learning, but none have approached the coherent blending of thinking, feeling/valuing and physical abilities called for by other critics. This paper presents a systematic attempt to hierarchically organize learner activity into the dimensions of mental, social and physical involvement. Several studies are reported supporting the validity of the three dimensional Confluent Taxonomy for both teaching applications and further pedagogical research.

TOWARD A CONFLUENT TAXONOMY OF COGNITIVE, AFFECTIVE & PSYCHOMOTOR ABILITIES

In the late 1950's, committees headed by Benjamin Bloom and David Krathwohl constructed taxonomies of the cognitive and affective domain (leaving the psychomotor domain for others).[1] These and other taxonomies of learning have influenced thinking in the field of education even down to the present day.[2] In 1970, Kibler, Barker and Miles used the Bloom, Krathwohl, et. al. taxonomies in their book Behavioral Objectives and Instruction and developed categories of the psychomotor domain.[3] The latest edition of this book (1981) replaces their psychomotor categories with a taxonomy developed by Elizabeth Jane Simpson in 1967.[4] Notably, all of these efforts conceptualized the three domains of learning as distinct and separable.

Other theorists reacted against the tendency of educators to think in terms of a separation of the cognitive, affective, and psychomotor abilities in human learning and called for a confluence or "flowing together" of these realms in teaching. George Gordon noted the falseness of the old "mind-heart" duality.

> Considerable evidence (as well as theory) leads us to believe that folklore concerning the difference between emotions and cognitions is a bald simplification of a sophisticated process. Emotional behavior, in fact, necessitates cognitive perception of many factors. It is even possible that a profitable perspective of emotions considers them as one class of cognition itself. The concept of 'emotional men' as opposed to 'thinking men' probably has logical and historical validity but is useless psychologically.[5]

Psychologist George I. Brown[6] suggested teaching strategies and activities to effect such "confluent education," but Brown

tends to stress the affective and does not achieve full confluence. At the 1973 Memphis Conference of Teacher Educators in Speech Communication, several participants expressed concern to develop a confluent taxonomy of learning.[7] This paper reports an attempt to meet that concern with an integrated system for analyzing classroom questions and activities. Research over the past ten years has resulted in the development of a three-dimensional (or cubic) taxonomy of learner involvement on the mental, social and physical dimensions. The following pages (1) outline the components of the taxonomy as developed from previous theory, (2) apply the model to actual speech class activities, and (3) report validity evidence from several research studies.

The three terms, mental, social, and physical, should not, however, be taken as synonymous with cognitive, affective and psychomotor respectively. In fact, some psychomotor elements are implicit in the mental dimension which is largely an attempt to integrate cognitive and affective hierarchies into the following six major levels.

Mental Dimension--Levels of Combined Feeling-Thought

1. Recording (awareness; verbatim receiving or recalling of ideas, feelings, and behaviors; observing, summarizing and collecting data)
2. Reacting (personal initial response; "gut level" first impressions, feelings at that time, or responding to an idea without deliberate reflection)
3. Interpretating (assigning meaning or understanding; translation or paraphrase of others feelings and ideas, giving an example or instance of a concept; clarifying and illustrating)

4. Analyzing --
   a. low-level - compare, correlate, classify, organize; e.g., interrelate values and feelings
   b. high-level - infer, reason, find assumptions; e.g., infer causes of behavior or events
5. Evaluating and Applying (systematically applying criteria or principles; criticizing, decision-making, valuing, predicting, hypothesizing, or choosing from alternatives)
6. Synthesizing (creating, composing, combining, imagining; designing projects, organizing value complexes)

Since this is a hierarchy, operating at any one level presumes having functioned (or at least being able to function) at all lower levels for a given topic or concept area. For example, analyzing involves the prior operations of recording, reacting, and interpreting.

These six categories were derived from a comparison of several of the major taxonomic efforts mentioned above and from examination of research conducted to test the Bloom, et al. cognitive domain. First, a number of different learning taxonomies and category systems were examined, but four major ones became the point of focus in deriving the six levels above. Simon and Boyer begin their volume Mirrors for Behavior with a comparison of their own cognitive system and the Bloom, et al. cognitive taxonomy. Adding to this comparison the Krathwohl , et al. and Simpson taxonomies yielded the matrix in Table One showing the association of the others with the six levels of feeling-thought.

[Table One here]

The table above may help to show how cognitive, affective, and some psychomoter elements have been synthesized into the confluent mental dimension. The comparison reveals some occasional variations in the sequencing of particular elements or levels, but except for one major difference the mental dimension is consistent in its hierarchy with the four other theorists. However, the one most notable departure is in the ordering of the application/evaluation and synthesis levels. The cognitive taxonomies place evaluation a level above synthesis although application is located lower in the hierarchy. The confluent mental dimension reverses the ordering of evaluation and synthesis for several reasons.

First, evaluation may be considered as a specific case within the more generic category of application. That is, in the process of evaluating one formally applies criteria, theories or standards to arrive at a judgment or decision. It is a mental process that typically follows from analysis (level four) and involves some complexity and formality, but is not as elaborate as the process of selecting and combining elements to develop a new product, entity or idea (synthesis, level six). Intuitively then, the logical sequence of higher order mentations seems to be from (a) analysis of the elements or factors in some focal event to (b) criteria-based judgments of the event to (c) creation of a new event based on assessing and subsequently combining elements of the prior analysis.

Questions about the ordering of application, synthesis, and evaluation also have been raised by previous studies which sought

to validate the much used Bloom, et al. taxonomy. Although the ordering of comprehension, application, analysis, synthesis, and evaluation was confirmed by Hill's research, it was necessary to eliminate the lowest level, knowledge, from the cognitive taxonomy in order to validate the higher order sequence.[8] Another study, by Miller, Snowman and O'Hara, found through path analysis that the hierarchy branched at application to analysis in one direction and synthesis then evaluation in the other branch.[9] Although both studies raise questions with the overall six level hierarchy of Bloom et al., they do not question the ordering of synthesis and evaluation. However, Seddon's review of research notes at least two major studies which conclude that though the other four categories "were in the correct relative order, Synthesis and Evaluation were not correctly placed."[10] Therefore, the data from prior research yields mixed conclusions regarding the validity of the Bloom et al. hierarchy--especially at the higher levels. In reviewing the evidence of inversions and overlaps among categories, Edward Furst summarizes the issue on the Bloom et al. schema in the following.

[caps in original]

> The record on usefulness is far from complete. Many unpublished or otherwise unreported uses will go undetected, as will further instances where the scheme may have been considered and rejected or tried and found wanting.[11]

It is possible that these questions previously raised can be resolved through research on this proposed redefining and reordering of the cognitive categories.

The third reason for reorienting the levels grows out of the initial intent to create not just a cognitive dimension but a con-

fluent schema of mentation which includes affective and psychomotor elements. Note in the Table One comparison that the affective elements of valuing and organizing values, which relate most closely with confluent category five, are ordered below characterization or generalized set. Likewise, in Simpson's psychomotor system, origination (which fits with synthesis) is the highest level and follows adaptation (which is implicit in application/evaluation). The correspondences of confluent levels five and six with the Krathwohl, et al. and Simpson taxonomies are not perfect, but they suggest, in concert with the other two reasons, a resequencing for a holistic mental schema.

Thus from a logical analysis of prior research and theory, the six basic levels of mental activity were developed. Although the schema attempted to incorporate a full confluence of the three traditional learning domains it was immediately evident that the psychomotor area was not fully represented in the mental dimension. It was also felt that another realm of learner activity had been previously neglected in learning taxonomies. No hierarchical system was found to structure levels of the social interaction situation in teaching-learning settings. So two further dimensions were developed to achieve a complete analysis schema. The fully confluent model must show the interaction of the mental levels with the physical dimension of motor activity and the social dimension of human interaction as relating to academic settings.

The Social Dimension

The social levels used--aggregate, individual, and group--derive from Alfred Gorman's 1964 treatment of interpersonal and group

process in teaching.[12] His categories are herein further developed into a hierarchical dimension. The major intent of Gorman's now out-of-print book was to "focus on teacher-student and student-student interaction and its improvement in both the cognitive and affective domains." (p. 24) Hierarchical order is implied in his concern for the class to develop from an "aggregate" of non-relating persons to a functioning interpersonal "group."

He does not, however, explicate this concept as a dimension of learner involvement and he does not focus on the individual in this process.[13] However, it seems to this researcher that the emergence of the individual learner identity (i.e., intrapersonal awareness and one-to-one relationships with teacher or significant others in class) is an intermediate stage in movement to effective group projects, teamwork, etc. At least this social dimension provides for the testing of this order assumption and offers a variable which has been neglected in previous learning taxonomies. These three social levels are further subdivided into silent (e.g., viewing, pantomime), or vocal/verbal interaction with others. Thus we have a social involvement dimension of three levels with two sublevels each of silent or verbal interaction--either as (a) a simultaneous human mass with no personal identity, (b) a single person communicating, one-to-one or one-to-class, or (c) an intermeshed team or group of individuals in consort.

The Physical Dimension

This largely psychomotor schema represents a somewhat intuitive division of the extent of muscle use based on personal experiences with teaching-learning activities. It moves from the (1) small

muscles like the eyes, lips, face, to (2) motion focused in one extremity of the body (e.g., legs, arms, or head only), then (3) movement primarily located in a part of the body (e.g., upper torso or arm-leg combinations only), and finally to (4) activities requiring coordination of total body movement. This division seems to create a simpler and more logical set of levels with fewer categories than Simpson's to keep the system workable. A category system which presents many categories and subcategories--some of which may not be significant distinctions--can become too detailed to be usable in real situations. Of course, this dimension differs from Simpson's in approach as well. The physical dimension is largely pure motor behavior or muscle activity without the psychological aspects (which have been incorporated into the mental dimension). Here, too, the validity, discreteness, and utility of these four physical levels needs to be further tested.

The Complete Confluent Model

The interaction of the mental, social, and physical dimensions is best pictured as a three-dimensional cube with the levels of each matrix (dimension) intersecting to form subsections or boxes within the cube (see Figure 1).

[Place Figure 1 here]

It may be difficult to visualize the three dimensional space as represented on the flat two dimensional plane of the page. Therefore, it could help to think of the vertical and horizontal lines of the cube being transcribed on a clear plastic photo display cube. Now it should be possible to see that the low ends of each dimension (the lowest level of involvement--mentally, socially and physically) intersect to form a segment at the upper left corner and at the front

of the cube. This segment represents the involvement of the learner in only recall or reception mentation as part of a silent aggregate with only small muscle movement necessary (such as the eyes). In the opposite corner at the lower right back, as on an axis from corner to corner dissecting the cube, is a subsection representing the highest level of involvement on all three continua--mental synthesis, vocally part of a functioning group or team, and with the whole body involved. Between these two extremes of involvement there are 142 other "boxes" representing other degrees of learner involvement on the three dimensions. In other words, the cube presents a 6x6x4 model for potentially 144 categories of learner activity and involvement. The potential number increases to 168 when the analysis level (mental dimension) is subdivided into high and low levels.

The three-dimensional or cubic taxonomy may now be applied to account for the learner involvement demanded or stimulated by specific teaching techniques, exercises, games, assignments, or projects. Each activity a teacher designs and conducts (whether in class or out) calls for involvement of the student at some level on each of the three dimensions (mental, social and physical). That is, a given activity may require a learner to think-feel at "x" level while socially interacting at "y" level and moving the body at level "z" during the activity. To illustrate this point about learner involvement more specifically, Figure Two presents the author's attempt to categorize a number of common teaching techniques and speech assignments according to the involvement generally required of the learner.

[Place Figure 2 here]

Clearly this categorization is not easily done when addressing general categories of activity such as reading, viewing a film, oral interpretation, or discussion. Therefore, the categorizations in Figure Two may be controversial in many instances. However, specific assignments or exercises--such as (1) the "NASA Lost on the Moon", (2) the "Make-a-Machine" ensemble pantomime, or (3) an impromptu sales pitch on an object drawn from a hat--should be classifiable in terms of the cube segments. As used (or observed) by the author, these activities might be placed as follows.

1. NASA--group vocally evaluates with small muscles only.
2. Machine--group silently synthesizes with whole body.
3. Impromptu--individual vocally synthesizes with partial body involvement.

Again, a teacher's individual variations in an activity could alter where it fits on the three dimensions of learner involvement.

In any case, the cubic taxonomy should facilitate a clearer understanding of just what is being demanded of the student by various assignments, lessons, and games. It could, therefore, serve as a guide to (1) the uses of various print and nonprint media in teaching, (2) the progression or stages of various forms of group discussion, (3) the ordering of particular forms and techniques of dramatic activity, and in general, the sequencing of class work and assignments in a lesson, a unit, a course or even an entire curriculum. The three dimensions may be applied as a guideline for the teacher in designing and sequencing teaching activities through any

period of time.

In addition, the confluent taxonomy may be applied as a critical guideline for assessing the use of published activities or sequences recommended by other teaching authorities. In one such study, Gollon

assessed creative drama movement exercises published in three well-known textbooks.[14] From her analysis, she concluded that all three of the texts recommend sequences of movement exercises corresponding generally to a progression through the levels (or degrees) of the taxonomy from low to high involvement. Although the three movement authorities are generally in independent agreement with the progression described by the cube, there are a few points of inconsistency noted by Gollon. For example, she observes that even though Viola Spolin seems to intend most of her activities to be on the recording or reacting levels in a group situation, for many of the exercises "the mental level often seems to be more accurately an aggregate situation."[15] In other words, Spolin's recommended exercises may not always agree with her stated purposes, but they do generally follow a progression through the cube taxonomy of levels.

Other studies could similarly compare the recommendations of published experts with the confluent taxonomy. Gollon focused on movement in creative drama, but research could examine other areas of drama and speech with a similar methodology. The design of the taxonomy also should facilitate carefully defined and controlled experimental studies of teaching techniques and activities. For example, the learning effectiveness of particular sequences of speaking

assignments can be operationalized by the cube categories and experimentally tested. Thus, the confluent cubic taxonomy should provide a workable design for (a) critical research on both teacher originated and previously published learning strategies, lessons, and activities, as well as (b) experimental research on the effectiveness of various teaching patterns.

Preliminary Research on Validity

Several different studies of the validity of the mental dimension levels have been conducted over the past three years. Also, this past year, a validity study was conducted of the full three dimensions of the taxonomy.

In one test of the mental dimension, a group of five graduate students in speech communication with high school and college teaching experience were asked individually to classify 12 questions (drawn from actual class interaction situations) into the six levels of the dimension. Each person completed this task independently in 15 minutes with no more training than a consideration of the definitions of the levels as listed earlier in the paper. The overall accuracy of classification, with the criterion category assigned by the author (and unknown to the raters), was 75 percent. For nine of the 12 questions, the interrater agreement with the criterion category was 4/5 or 5/5, for 80-100 percent agreement. However, when the mean of the graduate students' codings on each question was correlated with the author's coding, a Pearson Product-Moment $r = .97$ resulted for the 12 questions. These indices are especially impressive when considering the fact that some questions could ambiguously associate with two categories depending on the context of the

question. The questions were presented without contexts, which had to be assumed by the respondents.

Two other studies applied the mental categories to questions frequently asked by company representatives in employment interviews. A survey of 92 companies generated 50 questions[17] which were then categorized by (1) four graduate students[18] and (2) 34 undergraduate students in a lower division speech course.[19] The procedure was similar to above (no training and no knowledge of the author's codings) but the lower division students were rating on a 1-5 scale the "amount or depth of thought it requires of you." The resulting correlations of the mean ratings for each student group with the criterion category were as follows:

1. Graduate students, Pearson r = .843, n = 50 questions
2. Undergraduates, Pearson r = .750, n = 50 questions

Clearly the agreement of each group with the author is high in spite of the fact that again these were questions listed separately without a surrounding context. In these two studies, only a very general context of a job interview is known. The lack of a specific context for each question in all three studies may be (a) reducing the agreement of the respondents, and (b) creating uncertainty resulting in multiple categorizations.

To correct for this context problem, two recent studies (1982) had graduate students code questions and directions within actual transcripts of classroom interaction. In the first, eight untrained teaching assistants[20] coded the mental levels of 34 instances in two different classroom situations via printed transcripts. The correlation of the T.A.'s means per instance or item and the criterion

coding was r = .718 (n = 34 items). In a second study, one T.A., (Beth Graham) was given a few hours training in the mental categories and then coded four different classroom interaction transcripts. The results on both percent of agreement with criterion category and correlation of codings were as follows:

Class 1--12 of 13 items = 92.3%, r = .666
" 2-- 7 of 9 " = 77.7%, r = .383
" 3--14 of 15 " = 93.3%, r = .976
" 4--12 of 14 " = 85.7%, r = .956

Even though the correlations are not high on two of the situations, these are due to discrepencies in only one or two items each and the percent agreement tends to be very high. The four classes represented a range of grades and topics (1, eighth grade English; 2, ninth grade social studies; 3, high school math tutor and student; 4, college speech discussion). Thus it appears that training can result in accurate application to many subjects and levels of classes.

The agreement levels in these studies are encouraging as to the validity of the mental dimension categories. The results indicate that the mental dimension is applicable to real questions in classroom and job interview interactions. Further study could also apply this dimension to the analysis of written test questions.

Even so, the above research focuses on only one dimension of learning--the affective-cognitive mental involvement required of the learner. A complete confluence of learning must consider the other two dimensions as well. On this point two studies have been completed. One, the Gollon study, was briefly reported earlier. A second used procedures and analyses similar to the research on

the mental dimension just discussed.

Again in 1982, the eight T.A.'s (see note 20) were given Figure One and a brief oral explanation of the social and physical dimensions. They were previously acquainted with the mental categories. However, they were neither given examples nor shown Figure Two. They were then given a list of 30 typical speech and drama projects, assignments and exercises to categorize by all three dimensions [Place Table Two here] They were to categorize this list individually and independently. The correlations of their mean codings with the author's criterion (determined prior to their responses) ran very high. The Pearson r's were .910 for the social dimension, .895 on physical dimension, and .840 on mental dimension (n = 30 items in each case). These correlations were higher than expected considering the variability in how instructors use and interpret even very common assignments.

The preliminary research has offered a positive beginning to the theoretical and practical use of the confluent taxonomy, but other questions remain for examination. Further research is needed to address questions such as the adequacy and coherence in the confluence of elements in the schema, the ordering of the various levels, and the distinctness of categories or subsections of the cube. Both the theoretical validity and the practical utility of this confluent learning taxonomy need to be further researched. However, the previous theory underlying the three-dimensional model and the preliminary applications of it, as reported herein, provide qualified support for the soundness and usefulness of the taxonomy. At least it can serve as a tentative guideline for teacher lesson planning and as a heuristic for the researcher in communication pedagogy.

NOTES

[1]Benjamin S. Bloom (ed.), M. D. Engelhart, E. J. Furst, W. H. Hill, and D. R. Krathwohl, Taxonomy of Educational Objectives--The Classification of Educational Goals, Handbook I: Cognitive Domain (New York: David McKay, 1956); David R. Krathwohl, B. S. Bloom and B. B. Masia, Taxonomy of Educational Objectives--The Classification of Educational Goals, Handbook II: Affective Domain (New York: David McKay, 1964).

[2]See Anita Simon and E. Gil Boyer, eds., Mirrors for Behavior: An Anthology of Class Interaction Instruments (Philadelphia: Research for Better Schools, Temple University, 1967); especially Generalized Category System (p. 10), Aschner-Gallagher System, Smith, et al. Strategies of Teaching, Taba System, Roberson Teacher Verbal and Nonverbal Behavior, and Roberts Modes of Communication.

[3]Robert J. Kibler, Larry L. Barker and David T. Miles, Behavioral Objectives and Instruction (Boston: Allyn & Bacon, 1970).

[4]Robert J. Kibler, Donald J. Cegala, Kittie W. Watson, Larry L. Barker, and David T. Miles, Objectives for Instruction and Evaluation, 2nd ed. (Boston: Allyn & Bacon, 1981); Elizabeth Jane Simpson, "The Classification of Educational Objectives in the Psychomotor Domain," Illinois Teacher of Home Economics, 10 (1966-67), pp. 135-141.

[5]The Languages of Communication: A Logical and Psychological Examination (New York: Hastings House, 1969), p. 188.

[6]Human Teaching for Human Learning: An Introduction to

Confluent Education (New York: The Viking Press, 1971).

[7]P. Judson Newcombe and R. R. Allen, eds., New Horizons For Teacher Education in Speech Communication, Report of the Memphis Conference of Teacher Educators (Skokie, Ill.: National Textbook Company, 1974); a specific recommendation for taxonomic research is presented on p. 136, but the open discussion of a confluent taxonomy approach is not reflected specifically in the Conference Report.

[8]P. W. Hill and B. McGaw, "Testing the Simplex Assumption Underlying Bloom's Taxonomy," American Educational Research Journal, 18, No. 1, Spring (1981).

[9]William G. Miller, Jack Snowman, and Takeshi O'Hara, "Application of Alternative Statistical Techniques to Examine the Hierarchical Ordering in Bloom's Taxonomy," American Educational Research Journal, 16, No. 3, Summer (1979), pp. 241-248.

[10]G. M. Seddon, "The Properties of Bloom's Taxonomy of Educational Objectives for the Cognitive Domain," Review of Educational Research, 48, No. 2, Spring (1978), p. 320.

[11]Edward J. Furst, "Bloom's Taxonomy of Educational Objectives for the Cognitive Domain: Philosophical and Educational Issues," Review of Educational Research, 51, No. 4, Winter (1981), p. 450.

[12]Teachers and Learners: The Interactive Process of Education, 2nd ed. (Boston: Allyn & Bacon, 1974), now out-of-print.

[13]Gorman defines a class on the first days of a course as an "aggregate" or random collection of people, and distinguishes this stage from the later development of a class into a fully functioning, cooperating and working "group."

[14]Lynne Gollon, "Application of the Three-Dimensional Taxonomy to Creative Movement Exercises," Unpublished Paper, Kent State University, School of Speech, Summer 1979; the three texts she examined are Lea Bartal and Nira Ne'eman, Movement Awareness and Creativity (New York: Harper & Row, 1975), James Penrod, Movement for the Performing Artist (Palo Alto: National Press Books, 1974), and Viola Spolin, Improvisation for the Theatre (Evanston, Ill.: Northwestern University Press, 1963).

[15]Gollon, p. 13.

[16]Five of seven students in Trends in Speech Communication Pedagogy, Spring 1981, participated anonymously.

[17]Frank S. Endicott, "Questions Frequently Asked During the Employment Interview," unpublished survey, 1979 (Evanston, IL: Northwestern University Placement Center).

[18]The members of a Spring 1980 Seminar were Nancy Goertzan-Shapiro, Mary Ellen Hamilton, Owen Hughes, and Relda Smith.

[19]Two sections of Fundamentals of Speech were used in Fall 1981.

[20]Participants were Ken Danielson, Noreen Faix, Beth Graham, Sherry Hondzynski, Bill Kennedy, John Morgan, Karen Sharp, and Laverne Wilson.

TABLE ONE

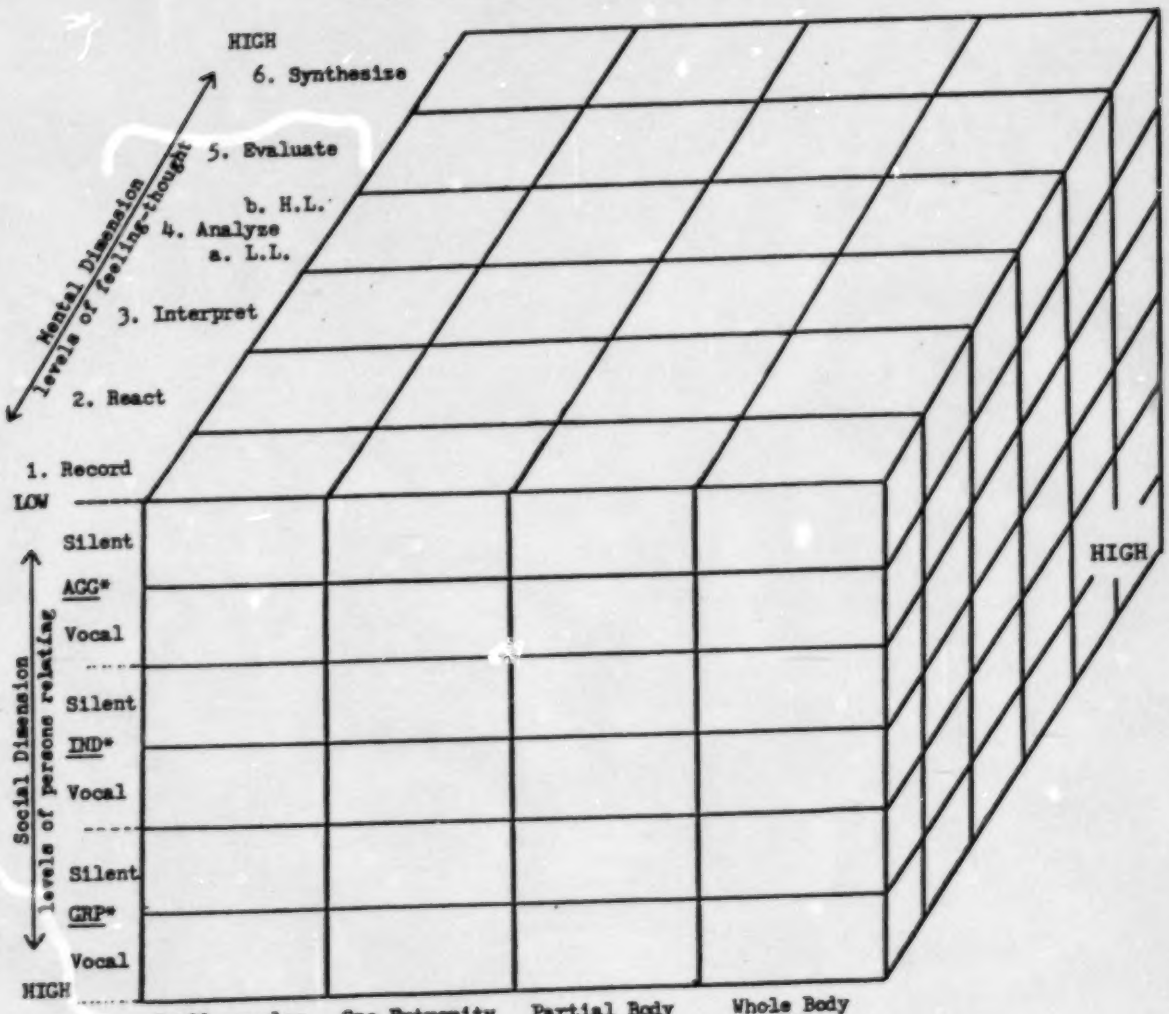
Comparison of Taxonomies

Cognitive		Affective	Psychomotor	Confluent
Bloom, et al.	Simon & Boyer	Krathwohl, et al.	Simpson	Mental Dimension
Knowledge (1)*	Data recall (1)	Receiving (attending) awareness (1)	Perception sensing (1) cue selection (1)	1. Recording
		Responding (2) acquiescence willingness	translation (3) Set (readiness) (2)	2. Reaction
Comprehension (translate, interpret) (3)	Data processing read or report (1) collect (1) enumerate	satisfaction	Guided Response imitation (1) trial & error (3)	3. Interpretation
Application (5)	group, classify (3) label	Valuing (2 or 5) acceptance (2) preference (2) commitment (5)	Mechanism (habitual) (?)	
Analysis (4)	analyze, compare, contrast (4) synthesize (6) infer, (4) general-ize, hypothesize(5)	Organization (4) conceptualize or a value system	Complex overt response (skill) (?)	4. Analysis
Synthesis (6) (plan, set of relations)		Characterization by value or value complex, gener-alized set (6)	Adaptation (5)	5. Application & Evaluation
			Origination (6) (creating)	6. Synthesis
Evaluation (5)	Evaluation (5) personal, social, or pragmatic criteria			

*The numbers in parentheses reference the associated level of the Confluent Mental Dimension.

FIGURE 1

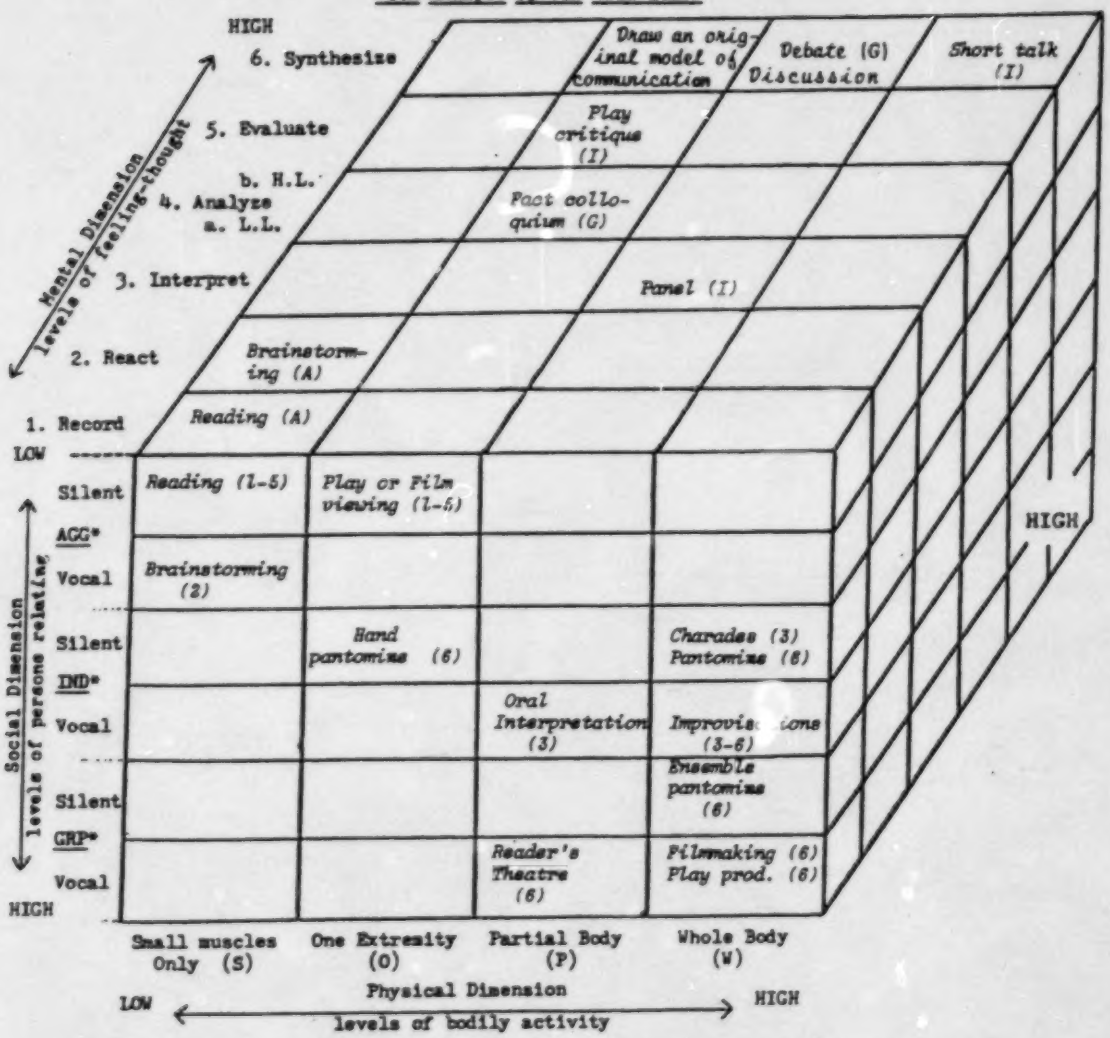
Confluent Three-Dimensional Taxonomy



*Social Dimension: Aggregate--(the mass as one) whole class simultaneous
Individual--(personal identities) one-to-class or one-to-one
Group--several individuals interacting, teamwork

FIGURE 2

Confluent Three-Dimensional Taxonomy
With Example Speech Activities



*Social Dimension: Aggregate--(the mass as one) whole class simultaneous
Individual--(personal identities) one-to-class or one-to-one
Group--several individuals interacting, teamwork

TABLE TWO

Listed below are 30 commonly used classroom speech activities, exercises or assignments. Using the Confluent Three Dimensional Taxonomy, place each of the activities according to a level of each dimension. In the margin next to each, write code letters and numbers to show the learner involvement required on the Social, Physical and Mental dimensions (AS-O-3, GS-W-6, IV-S-2,etc.).

1. Each student in turn presents to class an oral reading of a short prose selection.
2. Brainstorming ideas in a full class discussion
3. Students in a circle take turns doing hand pantomimes of playing with a "ball" of their choice.
4. Students watch a one-act play in the auditorium
5. Fifteen minute videotape shown in class
6. The class does a reader's theatre presentation.
7. The NASA Lost on the Moon or the Desert Survival exercise
8. Students read an assigned story silently in class
9. The class listens to an audiocassette of an old radio show (eg., The Shadow, Fred Allen Show)
10. The class plays a game of Charades
11. In class symposium of presentations with no forum discussion
12. A round of formal debates on controversial topics chosen by the students
13. Assigned written critique of a local theatre presentation
14. A round of short speeches in class
15. Class "production company" makes a short film
16. Each student draws a topic out of hat and does a short improvised monologue.
17. "Mirror" simultaneous movements of a partner, face-to-face
18. Class "builds a machine" in pantomime (students add on parts one-by-one)
19. Watch a 30 minute film in class

20. A colloquium in class to identify problems of safety in the home
21. A student panel-forum session on mandatory dorm living for Freshmen
22. Impromptu sales pitch on object drawn from hat
23. The drama class performs a full length play for the public
24. A problem-solving discussion of how to control violence in the streets
25. Students read aloud a new chapter in text by "round-robin," a paragraph per person.
26. Gossip exercise--pass along a news story orally, one by one
27. "Get Hands Down" eye contact exercise in class
28. Paraphrasing triads (summarize other person's ideas before commenting yourself)
29. Dialogue skit (script for two people with different scenes and roles but same lines)
30. Journal entry to note the factors and concepts of communication in an event observed.